

Claims:

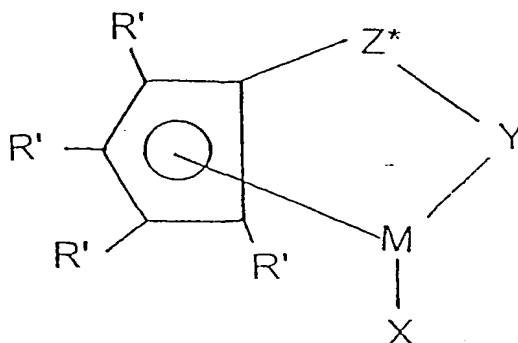
1. A method for the preparation of a supported transition metal catalyst system said method comprising the steps of:
 - (i) mixing together in a suitable solvent
 - (a) an aluminoxane and
 - (b) an ionic activator comprising a cation and an anion wherein the anion has at least one substituent comprising a moiety having an active hydrogen,
 - (ii) addition of the mixture from step (i) to a support material, and
 - (iii) addition of a transition metal compound in a suitable solvent.
2. A method according to claim 1 wherein the ionic activator is an alkylammonium tris (pentafluorophenyl) (4-hydroxyphenyl) borate.
3. A method according to claim 1 wherein the aluminoxane is tetraisobutylaluminoxane.
4. A method according to any of the preceding claims wherein the molar ratio of the aluminoxane (aluminium) to ionic activator (boron) is in the range 20 : 0.1
5. A method according to any of the preceding claims wherein the support material is silica.
6. A method according to claim 5 wherein the silica is pretreated with an organoaluminium compound.
7. A method according to claim 6 wherein the organoaluminium compound is triisobutylaluminium.
8. A method according to any of the preceding claims wherein the transition metal compound is a metallocene.

9. A method according to claim 8 wherein the metallocene has the formula:



wherein Cp is a single cyclopentadienyl or substituted cyclopentadienyl group optionally covalently bonded to M through a substituent, M is a Group VIA metal bound in a η^5 bonding mode to the cyclopentadienyl or substituted cyclopentadienyl group, X each occurrence is hydride or a moiety selected from the group consisting of halo, alkyl, aryl, aryloxy, alkoxy, alkoxyalkyl, amidoalkyl, siloxyalkyl etc. having up to 20 non-hydrogen atoms and neutral Lewis base ligands having up to 20 non-hydrogen atoms or optionally one X together with Cp forms a metallocycle with M and n is dependent upon the valency of the metal.

10. A method according to claim 8 wherein the metallocene is represented by the general formula:



wherein:-

R' each occurrence is independently selected from hydrogen, hydrocarbyl, silyl, germyl, halo, cyano, and combinations thereof, said R' having up to 20 nonhydrogen atoms, and optionally, two R' groups (where R' is not hydrogen, halo or cyano) together form a divalent derivative thereof connected to adjacent positions of the cyclopentadienyl ring to form a fused ring structure;

X is a neutral η^4 bonded diene group having up to 30 non-hydrogen atoms, which forms a π -complex with M;

Y is -O-, -S-, -NR^{*}-, -PR^{*}-,

M is titanium or zirconium in the + 2 formal oxidation state;

Z^{*} is SiR^{*}₂, CR^{*}₂, SiR^{*}₂SIR^{*}₂, CR^{*}₂CR^{*}₂, CR^{*}=CR^{*}, CR^{*}₂SIR^{*}₂, or GeR^{*}₂, wherein:

R^{*} each occurrence is independently hydrogen, or a member selected from hydrocarbyl, silyl, halogenated alkyl, halogenated aryl, and combinations thereof, said

R^{*} having up to 10 non-hydrogen atoms, and optionally, two R^{*} groups from Z^{*} (when R^{*} is not hydrogen), or an R^{*} group from Z^{*} and an R^{*} group from Y form a ring system.

11. A process for the polymerisation of olefin monomers selected from (a) ethylene, (b) propylene (c) mixtures of ethylene and propylene and (d) mixtures of (a), (b) or (c) with one or more other alpha-olefins, said process performed in the presence of a supported transition metal catalyst system prepared according to the method of any of claims 1-10.

12. A process for the polymerisation of ethylene or the copolymerisation of ethylene and α -olefins having from 3 to 10 carbon atoms, said process performed under polymerisation conditions in the presence of a supported catalyst system prepared according to the method of any of claims 1-10.

13. A process according to claim 12 wherein the α -olefin is 1-butene, 1-hexene, 4-methyl-1-pentene or 1-octene.

14. A process according to claims 11-13 performed in the solution, slurry or gas phase.

15. A process according to claim 14 performed in a fluidised bed gas phase reactor.

16. A catalyst component comprising the reaction product of

(a) an aluminoxane and

(b) an ionic activator comprising a cation and an anion wherein the anion has at least one substituent comprising a moiety having an active hydrogen.

17. A catalyst component according to claim 16 wherein the ionic activator is an alkylammonium tris (pentafluorophenyl) (4-hydroxyphenyl) borate.

18. A catalyst component according to claim 16 wherein the aluminoxane is tetraisobutylaluminoxane.